

CHAPTER 6
DOCUMENTATION

6-1. Monument/Marker Documentation. Each permanent monument constructed or recovered should be documented by completing DA Form 1959, Description or Recovery of Horizontal Control Station, illustrated in Figure 6-1.

a. Monument Name. The monument name shall conform to that outlined in the manual and as stamped on the disk. Longitude and latitude shall be scaled from maps for marks with vertical control only. The order of accuracy shall be determined as defined by Federal Geodetic Control Committee specifications. Monument type shall be designated as outlined by this manual. Additional instructions on the completion of DA Form 1959 are located on the back of the form.

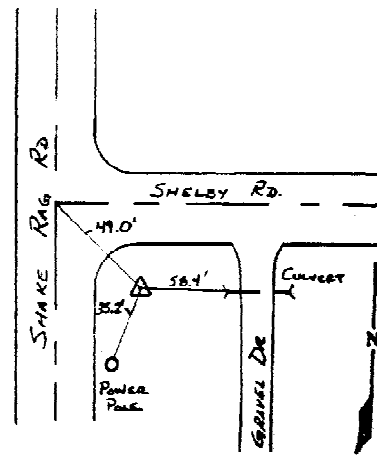
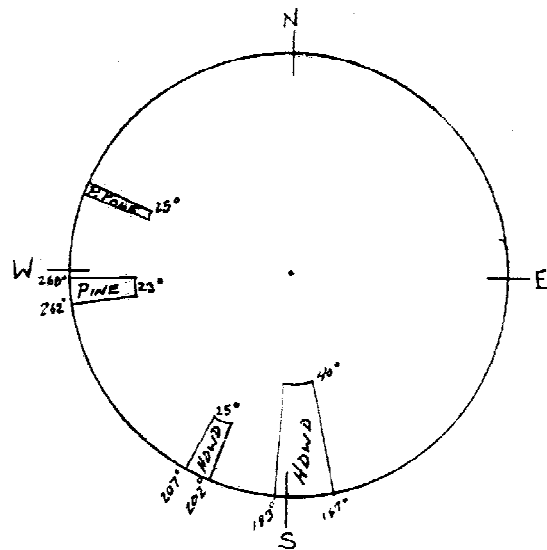
b. Computer Data Base Storage. For those using computer data bases for storage and retrieval of control data, a suggested format is illustrated in Figure 6-2. Use of this format is optional and modification of data elements is allowed to meet local needs. Additional instructions on the use of this format are located on the back of Figure 6-2.

EM 1110-1-1002
14 Sep 90

S A M P L E

COUNTRY United States		TYPE OF MARK A (23ft deep)		STATION Q-11-1-89	
LOCALITY Shelby Co., TN		STAMPING ON MARK Q-11-1-89		AGENCY (CAST IN MARKS) Corps of Engineers Memphis District	
LATITUDE 35-21-14.05966		LONGITUDE 89-57-09.62619		DATUM NAD 83	
(NORTHING) (FEET) 395,295.637		(EASTING) (FEET) 790,128.928		GRID AND ZONE Lambert - Tennessee	
(NORTHING) (METERS) 3,916,554.324		(EASTING) (METERS) 776,914.451		GRID AND ZONE UTM - 15	
TO OBTAIN Tennessee		GRID AZIMUTH, ADD 2 18 50.6		TO THE GEODETIC AZIMUTH	
TO OBTAIN UTM-15		GRID AZ. (ADD/SUB.) 45 51.8		TO THE GEODETIC AZIMUTH	
OBJECT		AZIMUTH OR DIRECTION (GEODETIC)(GRID) (EASTING)		BACK AZIMUTH	
Q-11-2-89		93° 56' 05.5		93° 56' 14.5	
				GEOD. DISTANCE (FEET) 1277.040	
				GRID DISTANCE (METERS) TN-1277.002ft	
				UTM-389.450m	

First Order horizontal control mark was established by the Memphis District Corps of Engineers in November 1989. To reach the station from the intersection of U. S. Hwy 51 and Shelby Road, go West on Shelby Rd. for 2.8 miles to Shake Rag Road and the station on the left. The station is 49.0' SE of the intersection of Shelby and Shake Rag Road, 35.2' NE of a power pole, 58.4' W of the C/L of a gravel drive over a culvert leading to the residence at the site, and 2' N of a witness post. The disk is 0.7' below the surface of the access cover. The access cover is 0.2' below ground level and 0.5' below road level. The disk and access cover are stamped Q-11-1-89.



SKETCH

DA FORM 1959

1 OCT 84

REPLACES DA FORMS 1958 AND 1959, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 3-237; the proponent agency is TRADOC.

Figure 6-1. Description or Recovery of Horizontal Control Station Form (Continued)

S A M P L E

NOTES ON COMPLETION OF FORM

1. GENERAL: This form may be used in the field or, as an office form to record and publish positions, descriptions, and related data.

2. FIELD USE OF FORM: The information required should be obtained and recorded *AT THE STATION SITE*. The field engineer should fill in only the information available and applicable to field use. In general, the geographic and grid positions, azimuths, distances, and elevations should not be filled in at field level except when the information is required for an immediate specific purpose.

a. ORIGINAL DESCRIPTION OF NEW STATION: The type of mark used for the station, reference marks, and azimuth marks, and a description of each must be given in the text of the description. If a disk is used, the identity of the agency whose name is cast in the disk and all of the letters and numbers stamped on the mark which identify the organization establishing or setting the mark should be given. In many areas the use of disks is not desirable because of their loss, due to vandalism or superstition. Less conspicuous marks should be used under these conditions. This requires exact statements of the character of the marks. Information for all marks as to the elevation above or below ground and approximate elevation above or below nearby prominent features is important. At least three measurements within .01 foot should be made from the station to any permanent marks, features, or structures that would permit re-locating the spot where an instrument was centered.

Good judgment should be exercised as to how far these measurements should be made. It is recommended that they be made to items which are not in the immediate vicinity of the station. Angles should also be turned to these items, particularly where no azimuth mark or marks have been established.

b. VIEW: Provide information on height of tower or stand used in occupying or establishing the station and information on view from a normal tripod, i.e., a 50-foot tower was used at the station; view from a tripod height is clear to the south and east but is obstructed by rise in ground (by 50 foot trees) to the north and west.

c. PHOTOGRAPHIC IDENTIFICATION: Provide when possible, two measurements from the station to natural or cultural features which might be visible on aerial photography and a description of the terrain. If photographs are available identify the station thereon and note estimated accuracy of the identification.

d. NOTES ON RECOVERED STATIONS: A diligent search should be made for ALL previously established stations in the vicinity and no station should be reported as destroyed unless conclusive evidence of destruction is present. A statement of the diligence of the search and reason for the non-recovery of a previously established mark is required. If the spot where a station mark was located can be reproduced by measurement given in the description, the station is not destroyed. The reproduced spot should be tied in by azimuth and distance and the estimated accuracy of the reproduced location given. If a new mark is set in the exact location of a previously established but destroyed mark, the designation of the station should be identical with the original with only a new date added to its designation. If a new disk is set in the approximate location of the old station, the name should be preserved but the number "2" and a new date should be added.

(DESCRIBED) (RECOVERED) BY	
Carol A. Waite	
PROJECT	
GPS 12 - Big Creek	
DATE	FIELD BOOK
Nov 1989	N/A

U.S. Government Printing Office: 1986-491-003/43169

Figure 6-1. (Concluded)

S A M P L E

MONUMENT/MARKER DOCUMENTATION	
1. Name of Monument	<u>Q-11-1-89</u>
2. Quad Sheet	<u>MILLINGTON</u>
3. City (nearest city, town, community, etc.)	<u>SLOANVILLE</u>
4. County	<u>SHELBY</u>
5. State	<u>TN</u>
6. River *	
7. River Mile *	
8. Lake/Reservoir *	
9. Date established	<u>2 NOV 89</u>
10. Elevation	<u>272.648</u>
11. Latitude	<u>35-21-14.05966</u>
12. Longitude	<u>89-57-09.62619</u>
13. Datum	Vertical: <u>NGVD 29</u> Horizontal: <u>NAD 83</u>
14. Order of Accuracy	Vertical: <u>3rd</u> Horizontal: <u>1st</u>
15. Monument Type	<u>A</u> Type of Rods * <u>23 ft.</u>
16. Highway/Road *	<u>SHELBY</u>
17. Section *	
18. Township *	
19. Range *	
20. Baseline Station *	
21. Levee District *	
22. Levee Mile Post (LMP) *	
23. Railroad *	
24. Bayou *	
25. Ditch/Creek *	<u>BEAR</u>
26. Pumping Station *	
* - If applicable	
27. Description: <u>TO REACH THE STATION FROM THE INTERSECTION OF US HWY 51 AND SHELBY RD, GO WEST ON SHELBY RD FOR 2.8 MI TO SHAKE RAG RD AND THE STATION ON THE LEFT. THE STATION IS 49.0' SE OF THE INTERSECTION OF SHELBY AND SHAKE RAG RD, 35.2' NE OF A POWER POLE, 58.4' W OF THE C/L OF A GRAVEL DRIVE OVER A CULVERT LEADING TO THE RESIDENCE AT THE SITE, AND 2' N OF A WITNESS POST. THE DISK IS 0.7' BELOW THE SURFACE OF THE ACCESS COVER. THE ACCESS COVER IS 0.2' BELOW GROUND LEVEL AND 0.5' BELOW ROAD LEVEL. THE DISK AND ACCESS COVER ARE STAMPED Q-11-1-89</u>	
<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>Sketch</p> </div> </div>	

Figure 6-2. Suggested format for monument/marker documentation (Continued)

GUIDELINES ON COMPLETION OF FORMAT

1. General. This format may be used in the field offices to record positions, descriptive and related data, or for direct entry to a database program.
2. Use of Format. Descriptive data and other information available in the field should be recorded at the station site. All other applicable data should be added to the format as this information becomes available. Information equivalent to data items 1 thru 5, 9 thru 15, and 27 should be completed for each mark. All other items should be completed only as applicable.
 1. The name or station designation of the mark.
 2. The name of the 15-minute quad where the mark is located.
 3. The name of the city, town, or community near the mark.
 4. The county in which the mark is located.
 5. The state in which the mark is located.
 9. The month, day, and year the mark was established.
 10. The elevation of the top of the disk or rod of the mark. For horizontal-only marks, the elevation should be interpolated to the nearest half meter.
 11. The exact latitude (at least three decimal places) of mark. For vertical-only marks, the latitude should be scaled to the nearest second.
 12. The exact longitude (at least three decimal places) of the mark. For vertical-only marks, the latitude should be scaled to the nearest second.
 13. The datum surface to which the horizontal and vertical positions of the mark are referenced.
 14. The order and class of accuracy to which the horizontal and vertical positions were established. State if scaled or interpolated.
 15. The single letter designation of the monument type. If metal rods, pipe, or rebar were used, state the depth to which they were driven.
 27. The text of the description shall include, but is not limited to the following.
 - a. A one-paragraph narrative providing specific directions on how the monument may be reached from a readily locatable landmark, such as a public building in a nearby town or the crossroads of prominent highways.
 - b. At the station site, pinpoint the location of the mark with distance and direction from at least three reference objects in the immediate vicinity.
 - c. Vertical reference should be provided by giving the mark's distance above, below, or level with a nearby reference object or ground surface.
 - d. The distance and direction to the mark from the witness post should be provided.
 - e. If disk is used, provide the identity of the agency whose name is cast in the disk and all the letters and numbers stamped on the disk that identify the name of the mark and the organization setting it (i.e. the exact stamping on the disk).

Figure 6-2. (Concluded)